networks.[29] CDMA's wideband channel, advanced receiver technology and sophisticated encoding scheme result in a signal that is highly resistent to interference and eavesdropping. Some of CDMA's advantages over existing analog technology include improved voice quality, enhanced privacy, capacity increases of at least tenfold, and the potential for expanded wireless data and messaging services. Digital cellular technology also offers a platform for introducing many important new wireless services for business and consumers: text messaging, in-building coverage, voice mail notification, data communications, facsimile, and one-number calling.

Rather than rush to market with an inferior system, PacTel has chosen a carefully managed process of testing and managing the network in order to ensure quality. The company intends to conduct comprehensive testing before launching commercial service. By mid-1995, the digital network will serve PacTel's Los Angeles market, making this the largest CDMA infrastructure deployment contract announced to date.

ii. Cellular carriers have continuously developed product innovations.

The history of cellular service demonstrates that carriers compete not only based on the quality of service, but also on introduction of product innovations. California carriers, including PacTel, have introduced new services at a rapid pace. Voice mail, improved roaming, automatic call forwarding and cellular freeway call boxes have enhanced the value of the service, as well as contributed to California's

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29 Since 1990, PacTel and Motorola have been testing CDMA using PacTel's San Diego network in conjunction with Qualcomm, Inc. and a group of other carriers. PacTel will begin installing the Motorola equipment in early 1994, with pre-commercial service slated to begin by mid-year.

productivity. In the absence of regulation which strips incentives to invest in research and development, carriers will continue to bring new innovations to the market. For example, PacTel has plans to offer such innovative services as Cellular Digital Packet Data, voice activated dialing, wireless PBX and Express Call Completion.

iii. **Customer satisfaction has remained high.**

"[C]ustomer satisfaction is an important measure of the success of competition." 24 CPUC 2d at 565. With explosive growth, there is little doubt that cellular service is highly valued and that customer satisfaction has remained high. Market demand has remained strong, indicating that customers do not find prices unreasonable. PacTel's subscribership has grown from 15,318 in 1984 to over 800,000 by the end of 1993. Indeed, cellular demand grew over 30% in 1993 despite the recession.[30] Customer surveys show that the overwhelming majority of customers are satisfied with the quality of service. With continued technological innovation, coupled with additional market flexibility, even greater customer satisfaction is likely.

c. **There is no evidence of anticompetitive behavior.**

The OII acknowledges that competitive pressure may be achieved in a duopoly structure but asserts that the structure is susceptible to anticompetitive behavior.[31] OII at 19. This assumption regarding the FCC mandated structure has never been supported by any evidence at

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30 See, e.g., "The Cellular Communication Industry," Donaldson, Lufkin & Jenrette, Spring 1993, at 13; "1993 U.S. Cellular Market Forecast--Analog & Digital," BIS, 1993, at 1.

31 The OII supports this assertion, not with any concrete evidence or analysis, but merely with reference to inconclusive select comments by federal agencies. At most, these references indicate that the agencies are unable to determine whether the cellular market is competitive.

either the state or federal levels.[32] Thus, there is no foundation to support such an assertion. Indeed, factors present in telecommunications reduce the potential for anticompetitive behavior.[33] First, the tremendous growth in demand weakens any incentive to coordinate behavior in order to preserve industry profits.[34] The benefit of beating a noncompetitive price is greater when demand is relatively high. Second, the rapid pace of technological progress undercuts the effectiveness of collusive agreements. The pace of technology inhibits the ability to integrate prices for new services into such agreements.[35] Finally, the entry of new competitors, such as ESMR and PCS providers, eliminates incentives to collude in the face of

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32 Despite a four year intensive inquiry in I.88-11-040, no evidence of anticompetitive conduct was presented. The mere fact that carriers' prices may be similar is insufficient to support an assumption of collusion. The Commission has found that similarity of prices charged by competitors is indicative of effective competition. See also Bundling of Cellular Customer Premises Equipment and Cellular Service, Report and Order in CC Docket 91-34, 7 F.C.C.R. 4028, 4034 (1992) ("[T]here is no indication that anticompetitive conduct is occurring" in the cellular service market.)

33 Collusive attempts by firms to raise and sustain prices above competitive levels are limited by many factors, such as cost and product differences and rapid technological change and market growth. White, "Antitrust and Merger Policy: A Review and Critique," Journal of Economic Perspectives, Fall 1987, at 17-18.

34 See Besen and Burnett, Charles River Associates, "An Antitrust Analysis of the Market for Mobile Telecommunications Services," December 8, 1993, at 50-54.

35 R. A. Posner, Antitrust Law: An Economic Perspective (Chicago, IL: The University of Chicago Press, 1976) at 59-60.

price wars.[36] Indeed, in a market with as many as nine competitors, collusion is virtually impossible.

The Commission should not establish a regulatory framework with long term ramifications on the unsupported assumption that anticompetitive conduct exists. Cellular carriers are no more free to engage in anticompetitive conduct than are interexchange carriers or operators in any other competitive industry. Moreover, any concern regarding the duopoly structure is now eliminated by the entrance of ESMRs and PCS.

B. **A review of the Commission's criteria for market competition reveals that the wireless market is increasingly competitive.**

As demonstrated above, the OII's assumption regarding the level of competition between cellular carriers is baseless. Similarly, the assertion that cellular carriers will have market power in the broader wireless market is unsupported. PacTel submits that, rather than relying on baseless assumptions, a more rational inquiry into market conditions is the approach utilized by the Commission in granting AT&T regulatory flexibility. As in this case, the Commission was facing increased competition, albeit at a slower pace, in the interexchange market.

The Commission recognized "the difficulties explicit in determination of market power" in order to assess the impact of increased flexibility. 24 CPUC 2d at 550. Rather than reaching firm conclusions, the

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36 Ironically, only rate of return regulation of wholesale cellular service of the type proposed in Appendix B would provide any incentive for cross subsidy in the cellular market. Carriers would then be motivated to transfer retail costs to the wholesale rate base, thereby increasing profits at retail while earning an extra return on those costs transferred into the rate base.

Commission found it was preferable to adopt the Observation Approach[37] to assess benchmarks of competition measuring the impact of any flexibility on the market.[38] The Commission concluded that:

> [t]he most useful criteria include trends in market shares of AT&T and its competitors; the extent of facilities ownership by competitors; the ease of market entry and exit; the size of individual carriers; and customer satisfaction and changes in prices and the mix of available services. 24 CPUC 2d at 546.

Recently, the Commission revisited the benchmarks in addressing AT&T's request for elimination of rate bands and the introduction of new services with notice and procedures comparable to nondominant interexchange carriers. See D.93-02-010. The Commission noted that

> no one measure or benchmark will prove whether a market is effectively competitive or not. . . . In order to judge market performance, you have to look at a lot of things (citation omitted). One should not look at a piece of data in isolation. D.93-02-010 (mimeo) at 29-30.

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37 The Observation Approach, drawn from staff and Pacific Bell recommendations, permitted AT&T limited regulatory flexibility and then monitored and measured the beneficial and harmful effects of such flexibility on customers and competitors:

> Since the behavior of the market is key to the desirability of various regulatory options, this argues for permitting some of that behavior to take place on a controlled basis as a guide to the likely consequences of further flexibility or deregulation . . . . Under the Observation Approach, the effects of regulatory flexibility would be measured rather than predicted. Limited flexibility would be granted initially and the results closely monitored to assess actual marketplace responses and any benefits or costs to ratepayers. 24 CPUC 2d at 550-551.

The purpose of the Observation Approach was to avoid the burden of producing detailed cost studies. D.88-12-091, 30 CPUC 2d 384, 402.

38 The Commission ordered the Commission Advisory and Compliance Division ("CACD") to conduct workshops and develop a monitoring plan enabling the Commission to measure and assess the impact flexibility may have on AT&T's customers and competitors. There was a consensus in the filed comments that no fixed formula for determination of market power was available. Most of the parties concluded that market power could only be assessed through consideration and weighing of multiple criteria. 24 CPUC 2d at 555. After workshops and additional briefing by the parties, CACD presented a proposed monitoring plan to the Commission.

The CACD noted that AT&T had a greater market share, at 65%, than any other single competitor and that the three largest carriers combined controlled 96% of the intrastate market.[39] Nevertheless, the Commission found, based on the evidence, that competition was sufficient to warrant increased regulatory flexibility for AT&T.

> The evidence presented shows that the interLATA market remains concentrated primarily in the hands of AT&T-C, MCI and Sprint, although new competitors are entering the market. The new entrants . . . pose little threat to these three at the present time . . . Nonetheless, we view these new entrants as an important source to developing competition. Id. at 44-45.

The Commission adopted AT&T's pricing flexibility proposal,[40] finding that the benefits to consumers outweighed the potential risks:

> The competition from the other IECs should ensure reasonable prices in these markets. If AT&T-C prices its services too high or if its service quality deteriorates, customers will have the incentive to switch to a lower-priced or better-quality carrier. Id. at 55.

As in the case of AT&T, imposition of more restrictive regulation in the wireless marketplace based on simple assumptions regarding market power is neither warranted nor prudent. Indeed, the need for flexible forward-looking regulation is even more critical in the wireless market where each cellular carrier offers a discretionary service and has a significantly lower market share than AT&T which will certainly be decreased by the new competitors.

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39 AT&T's closest competitors were MCI at 18% and Sprint at 13%, based on minutes of use. Similarly, in the interstate market, AT&T had a share of 61% followed by MCI at 17% and Sprint at 12%. Commission Advisory and Compliance Division, "Report on 1991 California Interexchange Market Monitoring Plan," (hereinafter, "CACD Monitoring Report") December 1993, Exhibit 5.

40 The Commission found that additional ratemaking flexibility was warranted for all existing MTS, WATS, 800 and private line services. Id. at 55.

A review of the criteria identified by the Commission for the interexchange market, although not tailored to wireless service, provides a relevant starting point to assess competition in the new wireless market. The relevant factors include: (1) definition of the relevant market; (2) the capabilities of market competitors; (3) access or technical constraints on the market; (4) competitors' market shares; (5) the ease of market entry and exit; (6) trends in carriers' earnings; and (7) service quality and price competition. PacTel cannot, within the constraints of this filing, provide a complete analysis of each of these criteria. Hearings are necessary to fully explore competition in the new wireless market. However, even a brief review of the criteria, when applied to the wireless market, demonstrates that the Commission cannot summarily conclude that cellular carriers will have market power in the future.

1. **The relevant market includes all forms of wireless telecommunications, not merely cellular.**

In the case of AT&T, the Commission found that identification of the relevant market is a critical first step to determine whether a competitor has market power and noted that "a definition of relevant market encompasses geographic demarcations in addition to the services or products to be included."[41] 24 CPUC 2d at 555. In AT&T's case, the

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41 The Commission has found that "there is no single definition of relevant market" and that "the scope of the relevant market may well change depending on the type of regulatory change under consideration." 24 CPUC 2d at 556-557.

Antitrust analyses similarly recognize that the relevant market is usually measured both in terms of the products affected and the geographic area in which the products are offered. See United States v. E.I. DuPont de Nemours & Co., 351 U.S. 377, 404 (1956) (the relevant product market is composed of products with "reasonable interchangeability for the purposes for which they are introduced--

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Commission concluded the market was the intrastate interLATA market. In this case, the market is much broader, encompassing multiple new service providers providing different technologies and changing the market at a more rapid pace.[42]

As the Commission has noted, "[a] primary purpose in examining a new strategy for regulation of cellular is to place such regulation in the context of a rapidly broadening mobile telecommunications market." (Emphasis added.) OII at 6. The OII recognizes that the relevant market is broader than cellular service:

> [C]ellular technology is but one method for delivering mobile services. "Mobile telephone service" shall mean any service . . . which permits a user to initiate or receive calls and engage in two-way voice communications while moving freely about within a broad serving area. OII at 8, 17-18.

In order to establish the appropriate regulatory approach, the OII asserts that its "guiding strategy is to gauge the power over consumers or suppliers held by the different types of firms in the mobile market." (emphasis added). OII at 2. The problem of the proper definition of the wireless market is compounded by the pace of technological innovation. Continuing changes in technology and market structure will allow paging, cellular, enhanced specialized mobile radio, personal communications systems, mobile data and mobile satellite services to

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41(...continued)
price, use and qualities considered"); Brown Shoe Co. v. United States, 370 U.S. 294, 336-337 (1962) (setting forth the criteria to assess relevant geographic market).

42 The Commission has acknowledged the relevance of studying cross-elasticities of demand to measure substitutability of services. 24 CPUC 2d at 556. See also Twin Sport Service, Inc. v. Charles O. Finley & Co., 512 F.2d 1264, 1271 (9th Cir. 1975) (degree of substitutability is measured by cross-elasticity of supply). Cross elasticity may be assessed informally through customer surveys. See Competitive Telecommunications Association v. FCC, 998 F.2d 1058, 1063 (D.C. Cir. 1993); DuPont, supra, 351 U.S. at 400.

compete with one another.[43] Additionally, new generations of computer products which have mobile functionality for voice and data may soon radically reshape the marketplace. The analysis of the cellular industry's market power must take account of cellular in the context of the broader telecommunications and information markets in which it competes with alternative technologies.

a. ESMR.

Enhanced Specialized Mobile Radio ("ESMR") provides two-way digital voice data and messaging communications competing directly with cellular.[44] By consolidating radio frequencies previously used by separate carriers for mobile service, introducing digital technology, employing Time Division Multiple Access ("TDMA") and reusing frequencies via multiple base stations, ESMRs will substantially add to the capacity of the wireless industry to provide service.

Nextel, formerly known as Fleet Call, is the leading operator of ESMR service. Nextel began operation in Los Angeles in 1993 and plans to begin operation in San Francisco and New York this year.[45] Because Nextel has been able to use later generations of technology than analog cellular, Nextel believes it will be capable of carrying far more

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43 With regard to PCS and ESMRs as substitutes for cellular service, see Hausman Affidavit at 15-16.

44 SMR has traditionally been the communications link for fleet-oriented operations, used for the dispatch and coordination of taxicabs, messenger services and the like. SMR transmits and receives on blocks of radio spectrum (a total of 19 MHz) in the 800 to 900 MHz range that are immediately adjacent to and of comparable quality to the frequencies (a total of 50 MHz) presently licensed by the FCC for use by cellular carriers. Nextel Prospectus, August 17, 1993, at 23.

45 "Nextel Goes Digital, Mounts Challenge to Cellular Providers," Telephony, September 6, 1993 at 8. "Nextel Introduces Digital Mobile Network to California Customers," Advanced Wireless Communications, September 15, 1993, at 10.

traffic, allowing access to mobile telecommunications to many more people than are presently being served.

Nextel's service will integrate widely used telecommunications services not previously available in one unit. Nextel anticipates the services will include:

- Digital wireless telephone, available in both mobile and portable models featuring simplified call forwarding, speed dialing and voice mail;
- Private network dispatch, offering digital sound quality, immediate access to congestion-free 800 MHz spectrum and maximum flexibility in configuring networks based upon the customer's need;
- Digital messaging, delivering multiple alpha and numeric messages directly to the unit's screen with a store and forward function that insures delivery when an out-of-range or deactivated unit returns to the service area; and
- Data transmission, including the expansion of Nextel's message service to include circuit-switched data and subsequently, packet switched data services.[46]

b. Personal Communications Services.

On October 22, 1993, the FCC released its Second Report and Order[47] promulgating regulations for the establishment of Personal Communications Services (PCS). That order allocated spectrum for seven PCS systems in each market. The FCC plans to award PCS licenses to qualified applicants by auction.[48] Under the terms of the Omnibus Budget Reconciliation Act of 1993,[49] the FCC must implement regulations

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46 See Nextel 1993 Annual Report at 1; "Fleet Call Becomes NEXTEL; New Company Name Reflects New Business Designed to Serve Broader Wireless Communication Market," Business Wire, March 24, 1993.

47 Personal Communications Services, 8 F.C.C.R. 7700 (1993), reconsideration pending.

48 See Competitive Bidding (Notice of Proposed Rulemaking), 8 F.C.C.R. 7635 (1993).

49 See Pub. L. No. 103-66, Title VI, § 6002(a), 107 Stat. 312, 387 (1993).

and begin awarding PCS licenses by May 1994.[50] However, a license has already been promised to Cox Enterprises for the lower half of California and Nevada without imposing any auction fee.

PCS is projected to be everything cellular is today and to lead the industry to new heights.[51] Because PCS will begin with an entirely new digital infrastructure, it will have a potentially wide array of offerings with the mobility of wireless service. PCS will be able to service large numbers of users in metropolitan areas due to its high spectrum efficiency through use of numerous digital microcells. The microcells are small, digital radio transceivers located on utility poles in neighborhoods. Users may be handed off between cells as they move through coverage areas. Small microcells with low power levels will allow for small lightweight handsets.

The FCC has defined the PCS markets based on Rand McNally Major Trading Areas ("RTAs") and Basic Trading Areas ("BTAs"), rather than the smaller Metropolitan Service Areas ("MSAs") and Rural Service Areas ("RSAs") that delineate cellular markets. The MTAs and BTAs are substantially larger than cellular's MSAs and RSAs. For example, California and Nevada comprise thirty-eight MSAs and RSAs, but merely

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50 Once the process is formalized and under way, interested applicants will submit applications for PCS licenses sometime before the auction date. These applications must outline the technical proposal and financial qualifications of the applicant. Once the application has been determined to pass certain threshold standards for completion and accuracy, it will be deemed accepted for filing by the FCC and the applicant may participate in the auction for that market.

51 Cellular and PCS providers are expected to offer similar, if not identical, services. Personal Communications Services, supra, 8 F.C.C.R. 7700. The FCC's definition of PCS is broad: "[r]adio communications that encompass mobile and ancillary fixed communication services that provide services to individuals and businesses and can be integrated in a variety of competing networks." Id. at 7713.

parts of two MTAs.[52] Thus, a PCS provider will control a significantly greater proportion of the geographic market than a cellular provider.

Additionally, PCS is said to provide a functionality rivaling the next generation of cellular. One handset will provide paging, data and wireless services. "There's all sorts of additional flexibility that comes with it that is currently unavailable with current cellular service."[53]

c. **Paging**.

Paging permits reliable one-way communications for mobile customers with almost universal geographic coverage. The mobile customer generally uses paging to receive short messages, rather than larger amounts of information. Pagers are smaller and more portable than cellular units and have much longer battery lives. The costs of providing paging service are significantly less than cellular. Consequently, paging prices, including equipment and service, are also considerably less than cellular prices.

Paging is growing at over 20% per year,[54] and will most likely erode portions of the cellular market as technologies converge. Future paging technology will improve its ability to handle longer messages. The integration of paging facilities with enhanced, value added or information services is an increasingly important trend which may have a dramatic impact on its role in the wireless market, and more

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52 A small portion of the Portland MTA extends into California and a small portion of the Salt Lake city MTA extends into eastern Nevada.

53 "Barden, City Signal Try New Technology," Crain's Detroit Business, April 12, 1992, at 1.

54 "SMR in the United States: A Window of Opportunity," Merrill Lynch, October 1993, at 19.

specifically in the rapidly emerging PCS field.[55] Indeed, the FCC has created a category of new services under the umbrella of narrowband PCS which provide significant advances for current paging service.[56] It is anticipated that the end user perception of functional utility will increase as wireless paging integrates with voice products.[57]

d. IMTS.

IMTS (Improved Mobile Telephone Service) provides two-way interconnected voice communications (full duplex). In small to medium markets, IMTS is a direct competitor to cellular, particularly where the terrain is relatively flat. IMTS can serve a wide area with a single antenna and is significantly less costly to install than cellular. As a consequence, in a number of smaller California markets, the IMTS coverage area is much greater than cellular's coverage area.

e. Mobile data.

Mobile data products compete for that part of the wireless market where people do not need sustained interactive two-way communication. These systems allow very efficient usage of spectrum; thus, the amount of information and the speed at which it can be communicated is rapidly increasing, allowing mobile data systems to become increasingly sophisticated.[58] Hardware and software advances will continue to

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55 The coming evolution in the paging industry involves the merging of paging technologies with computers. AT&T, Motorola, and Hewlett-Packard are all developing wireless modem products to allow the transfer of text over paging frequencies. BIS Strategic Decisions, May 11, 1992, at 3.

56 See Narrowband Personal Communications Services, 8 F.C.C.R. 7162 (1993).

57 BIS Strategic Decisions, January 31, 1992, at 2.

58 For example, AT&T EasyLink Services and Lotus Development Corporation have electronic mail services, AT&T Mail and cc:Mail, respectively, available on RAM's networks. RAM Mobile Data news release

(continued...)

expand the amount of information that can be processed with this technology.

f. Satellite.

Mobile satellite services will provide global coverage, allowing service in areas where terrestrial service is not available. Several systems are in the design and planning phase. Satellite systems are anticipated to compete directly with cellular in remote areas. Competition is likely from the large number of planned mobile satellite ventures, many of which will target the national and international markets.[59] Motorola Inc. (Iridium), TRW Inc., Ellipsat Corp., Loral-Qualcomm Satellite Services Inc. and Constellation Communications Inc. have all proposed LEO-MSS systems.[60] The Chairman of the FCC recently observed:

> I believe the potential for this service is boundless and remains to be explored . . . [B]ecause LEO satellite systems can potentially provide global coverage, they will have the capacity to bring voice communications as well as radiolocation, data messaging, distress signaling and other valuable services to parts of the world that have previously had only limited means of participating in the global information network.[61]

The market clearly has broadened to include alternative technologies which compete directly with cellular. The current state of the market

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58(...continued)
and "Backgrounder," June 22, 1993 at 3. Ardis, a joint venture between Motorola, Inc. and International Business Machines, Inc., similarly offers data services through a nationwide network of Motorola radio stations.

59 See S. Sugawara, "Battle in the Skies," Washington Post, "Washington Business," October 18, 1993, at 1, 14-15). It describes nine such systems.

60 "Commission Reserves Spectrum for Mobile Satellite Services," RCR, December 20, 1993, at 9.

61 Ibid.

is fluid with the introduction of new technologies and alliances among the telecommunications, computer and cable industries.

2. Cellular will face increasingly more powerful and versatile new competitors.

In assessing AT&T's market power, the Commission examined the capabilities of market competitors, including their individual size, facilities ownership and potential growth, as relevant factors in determining competition. See 24 CPUC 2d at 560-562.[62] In the interexchange market, the Commission found that it was not the raw number of IECs in the market, but rather how successfully these individual companies compete against the existing status quo. Despite finding that the new entrants posed little threat to the larger carriers because they operated in market niches, the Commission concluded that the new entrants were an important source of "developing competition." D.93-02-010 at 44-45.

The dominant/nondominant classification proposed for the wireless marketplace fails to acknowledge the impact of strong new entrants. The OII concluded that it is the placement of control of radio spectrum in the hands of two facilities-based carriers per geographic market that

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62 The Commission recognized the importance of absolute size and growth rates in the development of the OCC market:

> The significance of the backing which certain OCCs receive from their parent companies probably lies in the OCC's access to capital and ability to survive periods of poor performance. The size of the corporation's telecommunications operations probably remains more relevant in consideration of economies of scale and ability to capture a significant market share . . . . New technologies will also have a continuing impact on the extent and importance of scale economies to the market. Id. at 562.

"constrains the competitive vitality of the market."[63] OII at 15. The entrance of up to eight powerful new competitors eliminates any alleged constraint on the "competitive vitality of the market." These new competitors are not startups; many will have greater financial resources than cellular carriers. Nor will the new entrants operate in market niches. They will compete head to head with cellular carriers.

Cellular will face competition from well-financed companies with technological experience. The new competitors are taking advantage of the lessons learned from the cellular industry. While the cellular carriers had to build out, relying entirely on projected analysis, the new entrants have the benefit of the actual empirical information regarding capacity and traffic learned from the cellular carriers' experience. The new competitors can recognize and compensate for the cellular carriers' weaknesses to reduce their capital expenditure needs and engineer greater quality control. These competitors are developing new digital systems without the costs of retrofitting analog systems. A brief look at some of these competitors demonstrates that competition will be fierce and well financed.

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63 The OII additionally concluded that the assumed lack of competition is also due to affiliate relationships whereby competitors in one market are partners in another market. OII at 15. However, affiliated entities involving partners have been part of the cellular industry since its inception. The Department of Justice, the Federal Communications Commission and this Commission have all reviewed such relationships in the course of approving various mergers and changes in ownership and have not concluded that such arrangements are anticompetitive. See, e.g., FCC Public Notice, Rpt. No. CL-92-29 (December 11, 1991) and FCC Public Notice, Rpt. No. CL-92-62 (March 13, 1992). The FCC and this Commission recently have approved the PacTel/McCaw joint venture to operate cellular systems in California (D.93-08-024).

a. ESMRs.

Nextel, CenCall, Dialcall and other ESMRs are constructing their networks throughout the United States.[64] Nextel's service will be available to almost all of California by late 1994.[65] "The ESMR industry has the opportunity to build a nationwide digital network with one uniform technology based on the Motorola Integrated Radio System ("MIRS")."[66] If the ESMR industry pursues a uniform MIRS platform, software upgrades will be simpler relative to analog cellular where upgrades must be implemented across several incompatible equipment platforms by several vendors. Additionally, ESMR providers are not limited by the requirements of a standard setting body, thereby expediting the implementation of the modifications.[67] Nextel's claims bear scrutiny by the Commission:

> The Digital Mobile Networks which we expect to emerge across the country are likely to have a critical advantage over cellular networks. Our own networks will be all-digital, using a common technology everywhere. We expect them to be compatible with the digital technologies to be employed in Digital Mobile Networks that other SMR operators are planning to construct. In contrast, the advantages of a digital system may not always be available to

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64 "Nextel's move into the digital wireless business points to a key fact: Companies that own or can acquire radio spectrum can quickly build new, competitive industries." "Nextel Goes Digital, Mounts Challenge to Cellular Providers," Telephony, September 6, 1993, at 8. "[T]he ESMR network is coming together faster than originally anticipated, as other SMR carriers start to upgrade to digital mobile networks." "Nextel Communications, Inc., No Guts, No Glory," Merrill Lynch, September 2, 1993, at 2.

65 "Nextel Goes Digital, Mounts Challenge to Cellular Providers," Telephony, September 6, 1993, at 8.

66 "SMR in the United States: A Window of Opportunity," Merrill Lynch, October 1993, at 8; "Wireless World: Fleet Call & DisCom to Merge--Fleet Call Service Will Cover 95 Million," Edge, December 25, 1992, at 6; "SMR Groups Band To Create Digital Wireless Network," RCR, March 22, 1993, at 22.

67 "SMR in the United States: A Window of Opportunity," Merrill Lynch, October 1993, at 8.

> cellular users as cellular operators are planning on deploying a variety of incompatible digital technologies across the country.[68]

Nextel's multiple service offering will provide effective competition to cellular's current existing single service offering. Nextel's research indicates that "many of today's wireless telephone customers are increasingly using multiple services, including vehicle dispatch and paging, and would prefer the convenience of dealing with a single vendor for customer service, billing and maintenance."[69] PacTel's own research bears this out, but these functionalities will not be available over the PacTel network until CDMA is deployed.

Additionally, SMR's historic position in the market may facilitate sales.

> Because SMR operators historically have served fleet carriers--businesses with tens to hundreds of vehicles--they will sell their subscriber phones "by the dozen to corporations, rather than one at a time as cellular companies do, and increase revenue per customer (emphasis in original). . . ."[70]

Nextel's original plan was to offer ESMR in six cities. Nextel has now expanded its plans, and has purchased sufficient ESMR spectrum from Motorola and other companies[71] to be able to offer its services to

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68 Nextel 1993 Annual Report at 6.

69 "Fleet Call Becomes NEXTEL; New Company Name Reflects New Business Designed to Serve Broader Wireless Communication Market," Business Wire, March 24, 1993, at 4.

70 "Nextel Strikes Again; Motorola Owns Pieces of All the Action," Land Mobile Radio News, November 12, 1993, at 2-3.

71 Recent transactions include Nextel's acquisition of radio dispatch units of Questar and Advanced Mobile Comm, as well as an ownership interest in CenCall Communications. G. Naik, "Nextel To Buy Dispatch Units of Two Concerns," Wall Street Journal, October 19, 1993, at A6. Similarly, CenCall and Dial Page have recently acquired a significant number of Motorola's mobile radio licenses. G. Naik and M. J. Ybarra, "Motorola to Sell 42% of Licenses in Mobile Radio," Wall Street Journal, October 25, 1993, at A2 (". . . the deals will propel Nextel, CenCall

(continued...)

about 70% of the population in the U.S.[72] This contrasts sharply with McCaw Cellular Communications Inc. ("McCaw"), the largest cellular carrier, with service areas which cover about 25% of the U.S. population.

Nextel will build a competitive network by purchasing existing SMR systems and through a consortium of other SMR operators installing digital equipment compatible to Nextel.[73] The consortium of SMR operators and access to MIRS will allow "roaming" by Nextel subscribers to metropolitan areas across the United States.[74] Nextel's proposed service area covers approximately 180,000,000 people and 45 of the top 50 MSAs.[75] Thus, Nextel will be a formidable competitor to cellular with its digital network offering service in almost all areas of the United States.

ESMR providers' ability to attract capital and their current revenues further demonstrate their strength.[76] Nextel has raised commitments

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71(...continued)
and Dial Page to the top of the mobile radio market, and almost certainly hasten their coalition of a coast to coast network enabling customers to carry wireless handsets anywhere they travel.").

72 "Nextel Gets Motorola's SMR Licenses, Forms Strategic Alliance with NTT," TR Wireless News, November 18, 1993, at 14; "Nextel's Deal With Motorola Advances Wireless Vision," Wall Street Journal, November 10, 1993, at B4.

73 En Route Technology, April 12, 1993, at 3.

74 Nextel Prospectus, August 17, 1993, at 16.

75 "Nextel Gets Motorola's SMR Licenses, Forms Strategic Alliance with NTT," TR Wireless News, November 18, 1993, at 14. The potential footprint of an ESMR provider in a given area could be larger than that covered by a single cellular operator, given the fragmented nature of cellular ownership. "SMR in the United States: A Window of Opportunity," Merrill Lynch, October 1993, at 36.

76 See, e.g., Nextel's 1993 IPO valued at over $525 million. Nextel Prospectus, August 17, 1993.

from strategic partners over the last 20 months for approximately $700 million. These deep-pocketed partners include Motorola, Northern Telecom, Matsushita and Comcast.[77] SMRs' monthly revenue per user is also increasing, with 1993's average creeping to $50 from $47 last year for dispatch service alone. This contrasts with the cellular industry, which is facing declining revenue per subscriber.[78] Nextel's strength is also reflected by the fact that it has had no trouble recruiting talent from other sectors of the telecommunications industry, including PacTel and McCaw.[79]

b. PCS.

PCS is one of the most eagerly anticipated new communication services in history. Interest is very high among potential PCS providers, including local telephone companies (both in and outside their regions), cable TV companies, and enhanced paging providers, among others. The potential entrants are well funded and experienced: Time Warner Telecommunications, Inc., AT&T, Cox Enterprises, Ericsson Business Communications, Inc., The Washington Post and Viacom International.

The cable industry will be an especially potent competitor in PCS:

> As a result of aggressive investments in upgrading their networks to fiber, acquisition of critical hardware and software capabilities and experience of combined cable/telephony services,

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77 Nextel 1993 Annual Report at 1; Mobile Phone News, April 12, 1993 at 3. "Wireless World: Fleet Call & DisCom to Merge-Fleet Call Service Will Cover 95 Million," Edge, December 25, 1992, at 6. Motorola is providing $260 million in new financing but the plan actually will result in more than $500 million in financing. "SMR Shock Waves Continue As Nextel Buys Additional Properties," Advanced Wireless Communications, November 10 1993, at 6.

78 "Study Forecasting 10 Million Digital SMR Units by 2000," RCR, November 22, 1993, at 15.

79 See, e.g., PCS News, November 25, 1993, at 9; "Nextel Buys Motorola Wireless Rights," Contra Costa Times, November 10, 1993, at C-1.

the cable industry is well prepared to do battle with existing wireless and landline carriers.[80]

Cox Enterprises, Inc. ("Cox") has been awarded a pioneers preference by the FCC, enabling it to commence construction of its network in California. Cox is a broadly diversified media and communications company with a significant presence in cable television, radio and television broadcasting, newspaper publishing, automobile auctions and other investments.[81]

Cox developed Cable Microcell Integrator, a device permitting microcells in a PCS network to be connected through a cable television plant.[82] Proponents anticipate that cable will reduce deployment costs significantly.[83] Cable companies already have coaxial cable throughout residential communities in the United States with facilities passing approximately 90% of all homes. These cable systems are undergoing a significant technological transformation even without the advent of PCS. Fiber optics are being deployed throughout cable systems to enhance the quality and reliability of video transmissions. Under Cox's current

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80 BIS Special Report, "Cable Television: New Competition in Communication Services," 1993, at 34.

81 Cox is the sixth largest cable system operator in the United States (serving 1,700,000 subscribers), the eighth largest television station group owner (by revenues), the fourth largest radio station owner and the ninth largest daily newspaper chain. [Cox] Request for Award of Pioneer Preference at 2. Cox recently acquired Teleport Communications Group, an alternative access provider. Id. Cox has also been active in mobile communications business through its former ownership of the largest paging company in St. Louis, CyberTel. Id. at 3.

82 Reply Comments of Cox Enterprises, Inc., May 4, 1992, Gen. Docket 90-314, March 1, 1993, at 15.

83 By using cable television and eliminating the cost to construct a duplicate broadband network, Cox will dramatically lower the cost of PCS. [Cox] Request for Award of Pioneer Preference at 13-14.

schedule of fiber implementation, each fiber node will serve 1,853 homes.[84]

Not only has Cox proposed a PCS infrastructure that can lower the cost of delivery of service to the consumer significantly, Cox has demonstrated that the infrastructure works, as evidenced by Cox's demonstration of a PCS/Cable call in 1992.[85]

3. There are no access or technical constraints on competition.

Spectrum is no longer as scarce a resource in light of the new allocations and the increase in capacity due to digital technology.[86] As the FCC has pointed out, PCS providers will not have the same obligations to support analog subscribers as cellular carriers[87] and will employ digital modulation techniques that will substantially increase the effective capacity of PCS allocations. Qualcomm Incorporated claims that by using its CDMA technology over 1.25 MHz, it can provide capacity equivalent to that of an analog cellular system using 25 MHz.[88]

PCS alone will have approximately 2½ times the amount of spectrum of both cellular providers combined. Moreover,

> [t]he ability to piggyback new PCS options on existing plant could serve to reduce dramatically the introductory barriers to a broad based PCS network and would open alternate access sources to both non-wireline cellular carriers and interexchange carriers. Cox's

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84 [Cox] Request for Award of Pioneer Preference at 13-14.

85 Id. at 1.

86 With the advent of PCS, the issue will no longer be spectrum. Value will now be created through the development of new products, services and distribution channels. "Market for Carriers," Cellular Business, December 1993, at 24, 26.

87 Personal Communications Services, supra, 8 F.C.C.R. at 7715.

88 See Qualcomm Request for Pioneer's Preference, Appendix A, Gen. Docket No. 90-314, May 4, 1992, at 6.

San Diego trial, although in the 900 MHz frequencies, demonstrated the feasibility of cable plant. Upgrading to the expected PCS frequencies at 1.8-1.9 GHz should not be and is not a major technical hurdle.[89]

Nextel claims that, with less than 10 MHz of spectrum in each of its major markets, its use of digital coding and TDMA transmission techniques provides up to 50 times the capacity of existing SMR systems and a six-fold capacity increase over current analog.[90] Nextel asserts that:

> By deploying a common, advanced, all digital technology everywhere and by offering an integrated package of high quality mobile phone, dispatch, paging and data services, the spectrum licensed to Nextel is sufficient to meet our business plan objectives for the foreseeable future. Additional capacity beyond that may come from enhanced technologies or through acquisition of spectrum from other SMR's in our markets.[91]

The marketplace should determine to the maximum extent feasible how to efficiently employ spectrum.

4. Cellular's market share will be diminished by the new entrants.

In determining the level of competition in the interexchange market the Commission acknowledged that measuring market share is relevant but problematic:

> Market share is one of the most obvious indicators of market power. However, there are potential problems with use and

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89 BIS Special Report, "Cable Television: New Competition in Communication Services," (1993).

90 See Nextel's Petition for Reconsideration, FCC Gen. Docket 93-252, November 18, 1993, at 7, 10. Nextel plans to implement frequency reuse, frequency hopping and advanced digital coding techniques to enhance spectrum usage. Nextel Petition, at 3, 10. See also "Highlights from the DLJ Cellular Conference," Donaldson, Lufkin & Jenrette Research Bulletin, June 17, 1993 at 14.

91 Nextel 1993 Annual Report at 7. An ESMR provider with a dominant channel position in a given market has enough capacity to service foreseeable subscriber estimates. "SMR In The United States: A Window of Opportunity," Merrill Lynch October 1993 at 37.

measurement of market share which must be guarded against. One problem is that current market share within the telecommunications arena is a static measure in what is a very dynamic industry. (Emphasis added.) 24 CPUC 2d at 557.

Obviously, neither cellular carrier's current market share approaches that of AT&T. Moreover, with the disappearance of the historical entry barrier to wireless communications, existing market share is a meaningless measure of market power.[92] Cellular's current share of the wireless market is a product of past market conditions which have now been eliminated. Current market share does not measure future economic conditions. New entrants will erode cellular carriers' existing market share through effective marketing and pricing strategies.

Thus, past market share clearly cannot predict the future. However, there are sound reasons to expect continued substantial competition, and alternative and more rational measures of future market share are possible. For example, capacity is a relevant consideration in determining market share.[93] A cellular carrier's capacity can be

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92 In enforcing antitrust laws, the courts have moved away from heavy reliance on market share and have applied a "rule of reason" analysis that incorporates many factors, other than market share, that are important to the competitive process. A more flexible approach to measuring market share is particularly appropriate for mobile telecommunications where circumstances are constantly changing due to the pace of technological innovation. See Hunt-Wesson Foods, Inc. v. Ragu Foods, Inc., 627 F.2d 919, 924 (9th Cir. 1980), cert. denied, 450 U.S. 921, 101 S.Ct. 1369, 67 L.Ed 348 (1981) ("Blind reliance upon market share, divorced from commercial reality, [can] give a misleading picture of a firm's actual ability to control prices or exclude competition.").

Similarly, the Department of Justice/Federal Trade Commission Merger Guidelines recognize the importance of changing market conditions. It notes that "recent or ongoing changes in the market may indicate that the current market share of a particular firm either understates or overstates the firm's future competitive significance." ¶1.521.

93 The Commission acknowledged that factors such as capacity, minutes of use and revenue were relevant measures of market share in the interexchange market. D.93-02-010 at 30-31. In the case of AT&T, the (continued...)

determined from its authorized bandwidth based on an entirely digital system.[94] Thus, each cellular carrier's share would simply be its share of the total bandwidth.[95] Under the current FCC rules, cellular licensees are allocated holdings of 25 MHz per cellular market.[96] The new PCS competitors may acquire licenses for up to 40 MHz of bandwidth. Accordingly, each cellular provider's share of the total bandwidth limited to 25 MHz would be significantly less than a PCS licensee who obtains the maximum allocation of 40 MHz.[97]

93(...continued)
Commission concluded that the available capacity of AT&T's competitors reduced AT&T's market power. AT&T owned 42% of activated circuit miles while nine other carriers controlled 58%. Id. at 31. With regard to minutes of use, the Commission concluded that AT&T was subject to "diminishing market power because its share of minutes of use decreased from 70% to 67% during 1989-1990." Id.

94 Besen and Burnett, "An Antitrust analysis of the Market for Mobile Telecommunications Services," December 8, 1993, at 35-37.

95 Id. at 42.

96 The total bandwidth of cellular and PCS is a conservative measurement in that it does not take account of the additional 19 of MHz spectrum allocated to SMR. An individual cellular carrier's share would be further diluted as additional capacity for mobile services is provided through ESMRs, especially in light of the fact that entrants that are buying up and combining capacity.

97 In light of these alternative wireless services, measurement of only cellular spectrum is an inappropriate basis for the characterization of a carrier as dominant. The Commission would automatically grant nondominant status to any cellular license holder who can demonstrate through an application process that it has control over no more than 25% of the available cellular bandwidth in a given CGSA. OII, Appendix B at 2. The Commission must consider other factors such as the significant new mobile spectrum to be auctioned in May 1994.

Indeed, the OII recognizes that the spectrum allocated to all mobile telecommunication providers is relevant. The Commission "would entertain" applications for nondominant status from any cellular license holder that claims to control no more than 25% of all the bandwidth used to provide public mobile telephone service in a given geographic market. OII, Appendix B at 1. This mechanism acknowledges that cellular is but one component of a much larger market, but needlessly sets up a regulatory hurdle to effective competition without any guidance as to the standard to be applied.